

What is claim d is:

1. A method of transmitting control signals in a communication network, comprising:
transmitting control signal data related to scheduling for uplink transmission of packet data over a single control channel, the single control channel configured based on a transmission mode.
2. The method of claim 1, wherein the control channel carries different control signal data based on the transmission mode.
3. The method of claim 1, wherein transmitting control signal data further includes transmitting one or more of medium access control buffer status data, transport format data, transport block size data and redundancy data, if the transmission mode is a scheduled transmission mode.
4. The method of claim 3, wherein the scheduling mode specifies what users transmit on the uplink, start times for the user and duration of uplink transmission.
5. The method of claim 1, wherein transmitting control signal data further includes transmitting one or more of, transport format data, transport block size data, HARQ channel ID data and an indicator indicating whether data carried on a corresponding data channel is a new packet or a re-transmission of a previous packet, if the transmission mode is a rate-controlled transmission mode.
6. The method of claim 5, wherein the rate-controlled mode specifies an allowed data rate for a user, the user transmitting autonomously, subject to the allowed data rate.
7. The method of claim 1, wherein transmitting control signal data further includes transmitting one or more of medium access control (MAC) buffer status data, pilot

transmit power data and data related to priority of a packet in the MAC buffer, if a user is configured in a reporting mode.

8. The method of claim 7, wherein the user transmits the control channel in the reporting mode when the user is neither scheduled for uplink transmission nor transmitting autonomously while subject to an allowed data rate for uplink transmission.

9. A control channel for signaling control information related to scheduling a user for uplink transmission of packet data in a communication network, comprising;
at least one sub-frame adapted to carry control information that is dependent based on the transmission mode the user is in for scheduling an uplink transmission from the user to the network.

10. The control channel of claim 9, wherein the sub-frame is comprised of a plurality of slots, each slot containing a plurality of fields of control information that differs based on the transmission mode of the user.

11. The control channel of claim 10, wherein each slot of the sub-frame includes one or more of medium access control buffer status field, a transport format field, a transport block size field and a redundancy version field, if the user is configured in a scheduled transmission mode.

12. The control channel of claim 11, wherein the scheduling mode specifies what users transmit on the uplink, start times for the user and duration of uplink transmission.

13. The control channel of claim 10, wherein each slot of the sub-frame includes one or more of a transport format field, a transport block size field, a HARQ channel ID field and an indicator indicating whether data carried on a

corresponding data channel is a new packet or a re-transmission of a previous packet, if the user is configured in a rate-controlled transmission mode.

14. The control channel of claim 13, wherein the rate-controlled mode specifies an allowed data rate for the user as the user transmits autonomously, subject to the allowed data rate.

15. The control channel of claim 10, wherein each slot of the sub-frame includes one or more of a medium access control (MAC) buffer status field, pilot transmit power field and a priority data field related to priority of a packet in the MAC buffer, if the user is configured in a reporting mode.

16. The control channel of claim 15, wherein the user transmits the control channel in the reporting mode when the user is neither scheduled for uplink transmission, nor transmitting autonomously while subject to an allowed data rate for uplink transmission.

17. The control channel of claim 9, wherein the user is in a reporting mode if there is no companion data channel on the uplink, in a rate-controlled transmission mode if there is no associated downlink transmission grant message received from a base station, and in a scheduling transmission mode if there is an associated downlink transmission grant message received from the base station.

18. The control channel of claim 9, wherein the at least one sub-frame has a 2 ms transmission time interval (TTI).

19. The control channel of claim 10, wherein the at least one sub-frame has a transmission time interval (TTI) adapted to be changed based on a desired control channel design, and wherein the number of fields within a given slot of the sub-frame remains constant for any given TTI.

20. A method of receiving control signals in a communication network,
comprising:

receiving control signal data related to scheduling for uplink transmission of
packet data over a single control channel, the single control channel configured
based on a transmission mode.